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THE PREVALENCE OF PATELLOFEMORAL OSTEOARTHRITIS: A SYSTEMATIC REVIEW

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Purpose: The patellofemoral joint has distinct structural, biomechanical and clinical differences from the medial and lateral tibiofemoral joints. However, it has not received adequate attention in research into knee osteoarthritis (OA), where it is rarely considered independently of the tibiofemoral joint. Previous reviews have investigated the prevalence of knee OA but did not report the compartmental distribution of OA in the knee joint. To date, there has been no synthesis of studies evaluating the prevalence of patellofemoral OA. This systematic review aims to determine the prevalence of radiographically confirmed patellofemoral OA amongst the general population and people with knee OA.
Methods: A search strategy was established, using terms associated with "patellofemoral OA", "prevalence" and "clinical features". These terms were used to search through Medline, EMBASE, CINAHL, SCOPUS, AMED and Web of Sciences (all databases) with no language restriction from database inception to August 2014. Duplicates were excluded, and two independent reviewers screened for eligibility. Studies were included if they reported prevalence of compartmental patterns of radiographic OA (patellofemoral and tibiofemoral OA) in a community or in a cohort of people with knee OA. Diagnosis of OA had to be conducted using a radiograph in accordance with American College of Rheumatology recommendations for the diagnosis of OA. Studies were excluded if they evaluated a targeted sample (e.g. occupation-specific participants) or repeated already reported data from the same cohorts. Data were extracted from studies that met the eligibility criteria. Prevalence numbers of patellofemoral OA were collated and quantitatively analysed.
Results: The search yielded 3834 records. After the initial screen, 126 full-text articles were assessed by two independent reviewers. The inclusion criteria were met by 23 studies that reported data on 10749 participants aged 20 years or more for the presence of radiographic knee OA. Whilst radiographic criteria were used by individual studies, their inclusion criteria for participant eligibility were mixed, varying from population and community-based samples (n=9 studies) to cohorts where all participants were experiencing knee pain (n=14 studies). Amongst the 9 studies that included samples from the general population aged 20 years or more, radiographic patellofemoral OA prevalence was present in 30.6% (1294/4230 participants). Findings from the 14 remaining studies that included samples with clinical and radiographic signs of OA identified patellofemoral OA prevalence to be 25.2% (1530/6067 participants) amongst participants aged 30 years or more.
Conclusions: This systematic review is the first to report the prevalence of patellofemoral OA amongst the general population as well as amongst people with knee pain. Findings from this review confirm the substantial prevalence of patellofemoral OA, demonstrating the need to consider the patellofemoral joint in research and clinical settings.

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DETERMINANTS OF REDUCED WORK PRODUCTIVITY AMONG PEOPLE WITH CHRONIC KNEE PAIN: A CROSS SECTIONAL SURVEY

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Purpose: The aims of this study were to evaluate the burden and explore potential determinants of reduced work productivity among people with chronic knee pain.
Methods: A survey containing several validated measures of absenteeism, presenteeism and work transitions as well as individual, disease and work-related demographics was mailed to 496 people who had completed participation in the Long-term Evaluation of Glucosamine Sulfate (LEGS) study.
Results: A total of 296 (60%) people provided a completed survey with 129 currently in paid employment. Only six (5%) reported absenteeism in the past two months, however 63 (49%) reported presenteeism over a seven day period and 31 (24%) reported making one or more work transitions in the last six months due to knee problems. In multivariate analysis, presenteeism was associated with moderate to severe knee pain (≥3/10) (odds ratio (OR) 2.77, 95% CI 1.30 - 5.8) and reporting problems with other joints (OR 2.32, 95% CI 1.04 - 5.17) while job instability reduced the likelihood (OR 0.40, 95% CI 0.19 - 0.86). Reporting one or more work transitions was associated with moderate to severe knee pain (OR 4.09, 95% CI 1.53 - 10.95), a high co-morbidity score (OR 4.44, 95% CI: 1.02 - 19.32) and low co-worker support (OR 2.79, 95% CI 1.04 - 7.46) while having an occupation involving sitting >30% of the working day reduced the likelihood (OR 0.35, 95% CI 0.12 - 0.97).
Conclusions: This survey demonstrates the high prevalence of reduced work productivity among people with chronic knee pain. Allowing access to sitting and promoting positive affiliations between co-workers are likely to provide an enabling workplace environment for these workers.

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INCIDENCE AND PREVALENCE OF TOTAL JOINT REPLACEMENTS DUE TO OSTEOARTHRITIS IN THE ELDERLY: RISK FACTORS AND FACTORS ASSOCIATED WITH LATE LIFE PREVALENCE. THE AGES-REYKJAVIK STUDY

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Purpose: To analyze factors associated with late-life prevalence and risk factors for incidence of total joint replacements (TJRs) due to osteoarthritis in a population based cohort.
Methods: After exclusion of those with inflammatory arthritis and fractures as causes of TJR, 5170 participants in the AGES-Reykjavik Study (mean age 76.4(6), 58% females) were included for osteoarthritis studies. 3133 of them had a follow-up visit 5 years later. TJRs were registered from CT scans at both visits.
Results: The prevalence of having at least one joint replacement operation due to OA was 13.6% and the yearly incidence was 1.4%/year during the five-year follow-up. Education, occupation classes and physical activity showed no association. Factors positively associated with late life prevalence of TJR included BMI (OR 1.08(1.06-1.11), $p=1.7x10^{-17}$ per unit), hand OA severity (OR 1.19(1.13-1.27), $p=3.9x10^{-9}$ per severity unit on a 0-4 scale), female gender, finger length ratio and spine BMD.
Risk factors for TKRs in the incidence group were knee symptoms at initial visit (OR 6.77(3.87-11.85), $p=2.1x10^{-11}$), prior TKR in the contralateral joint (OR 4.94(2.42-7.71), $p=7.8x10^{-7}$) and BMI (OR 1.13(1.08-1.19), $p=9.0x10^{-8}$). Predictors for THR were hip symptoms (OR 2.92(1.93-4.41), $p=3.9x10^{-7}$) and prior THR (OR 3.56(2.04-6.22), $p=8.3x10^{-6}$). Much stronger associations were seen for TKR than for THR with discriminatory analysis showing an AUC 0.71 for late life prevalence and 0.84 for the incidence.
Conclusions: This study illustrates the importance of the different information expressed by late life prevalence vs. incidence on the factors associated with severe osteoarthritis of the knee and hip. The observation that prior TJR is a risk factor for subsequent TJR in the contralateral joint has not been described previously. The high power predictions for TKR suggest that a predictive model may be feasible, particularly if it can be extended by the addition of further predictive variables, perhaps through genetic, biomarker or imaging data.
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THE DOT1L PROTEIN AND GENE NETWORK IN CHONDROCYTES IDENTIFIES H3K79 HISTONE METHYLATION AS A KEY REGULATOR OF WNT AND OTHER GROWTH FACTOR CASCADES

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Purpose: DOT1L is the only known H3K79 histone methyltransferase and has been linked to epigenetic regulation of the Wingless-like (Wnt) signaling pathway. Genome-wide association and functional studies identified the DOT1L gene to be associated with cartilage thickness and hip osteoarthritis (OA) and showed an interaction of DOT1L with canonical Wnt signaling. Here, we further investigated the biology of DOT1L in cartilage health and disease. Specifically, our objective was to define the transcriptional complexes and transcriptome associated with DOT1L in articular cartilage, and to link these DOT1L targets and interactors with the molecular characteristics of the articular